SUPPLEMENT No. 1

TO

Lecture Notes ON SOME OF THE BUSINESS FEATURES OF ENGINEERING PRACTICE

DEPARTMENT
OF BUSINESS
ENGINEERING
Stevens Institute
of Technology

1905

SUPPLEMENT No. 1

TO

LECTURE NOTES

ON SOME OF THE

Business Features

OF

Engineering Practice

BY

ander rombie

ALEX. C. HUMPHREYS, M.E., Sc.D., LL.D.

President of the Stevens Institute of Technology

DEPARTMENT OF BUSINESS ENGINEERING

Stevens Institute of Technology

1905

INTRODUCTORY.

These notes are intended to supplement the matter contained in "Lecture Notes on Some of the Business Features of Engineering Practice," lately issued.

Work in the class-room has subsequently developed the fact that these additions are advisable, and as the course already covers far more ground than is represented in the original notes and these additions, other supplements will probably be issued from time to time.

Again I have to thank Mr. White for his valuable assistance, so willingly rendered.

ALEX. C. HUMPHREYS.

THE STEVENS INSTITUTE OF TECHNOLOGY,
HOBOKEN, N. J.

SUPPLEMENTAL NOTES

ON

COMMERCIAL LAW

PREPARED BY HOWARD E. WHITE, ESQ.

AGENCY.

In notes previously prepared, the general subject of contracts has been considered, and an attempt made to give in a not too technical form the general principles which underlie all agreements. If these have been mastered it is now possible to proceed to a consideration of some special forms of contracts which the business or professional man is most frequently called upon to make. The general principles are common to all, but, in addition, each variety of contract gives rise to special rules, which must be considered.

One of the most common acts of everyday life is to delegate authority to another, for some more or less general purpose. A moment's consideration will disclose to anyone how frequent this act is. It is often done so casually as to escape notice, but from the act of sending a street urchin to buy a morning paper to the broad power of attorney which the multi-millionaire gives to his confidential secretary the principle is the same, and the two operations stand side by side before the law as the establishment of an agency. Let the terms which we are about to use be clearly defined.

A Principal is one who delegates to another the authority to represent and act for him.

An Agent is one to whom such authority is delegated.

Agency is the relationship existing between Principal and Agent.

An agency may be either *general* or *special,* depending upon

the scope of the powers granted. It is general when the agent is empowered to represent his principal in all his affairs, or all his affairs of a particular kind. It is special when the authority is of any less extent.

This distinction is of the utmost importance to consider, for it must be remembered that the relationship of agency concerns not only the principal and agent, but also those with whom the agent deals in behalf of the principal. If the agent's authority to bind the principal is to be in any way limited, great care must be taken that the limitation be apparent to outsiders.

The key to the relationship of agency which unlocks many doors, and makes simple the problems presented, lies in the consideration that the act of the agent within the scope of his authority is the act of the principal, as truly as though it had been personally performed, and once performed the agent disappears from the operation, and leaves the principal alone involved. Much of the difficulty of the subject arises from a misapprehension of this fact. The agent is the *alter ego* or other self of the principal, and the law makes no distinction as to the liability of the principal between acts personally performed and those done by a duly authorized agent.

It will at once be seen what an important subject agency is, and how great should be the care used in selecting an agent.

Why Is Agency a Contract?

At first sight it seems somewhat strange to denominate such a relationship a contract, but a moment's thought will show that the agreement of the agent to represent the principal, and of the principal to employ the agent, forms an obvious contract, for which the consideration is the remuneration received by the agent and the benefit received by the principal from being able to delegate certain duties to another.

Establishment of Agency.

An agency, like almost every other contract, may be created orally or by written instrument. The authority may be conferred

either before the act contemplated or, in some cases, by a subsequent approval and ratification of a previously unauthorized act.

Let us suppose that A, without authority from B, should go to C, and purporting to represent B, purchase a stock of merchandise; A or C then notifies B, and the latter acquiesces in A's acts. B thus ratifies A's acts and becomes bound thereby. Disaffirmance of an unauthorized act must be prompt and complete if liability is to be avoided. It need hardly be said that ratification can only be predicated upon full knowledge of all the facts involved. Sometimes an agency is implied by operation of law, as where one person knowingly permits, without objection, another to hold himself out as a representative, and to enter into agreements in his behalf.

RELATIONSHIP INVOLVED IN AGENCY.

A consideration of the relationships arising out of agency falls naturally under three heads:

a. Relationship between principal and agent.

b. Relationship between principal and third persons with whom the agent deals.

c. Relationship of the agent to third persons.

These three will be considered in turn:

a. The extent of the agency depends entirely upon the agreement between principal and agent. It may be as broad or as narrow as the principal pleases, but it should always be clearly defined, otherwise endless trouble ensues from the commission of unauthorized acts. In all but the simplest cases the scope of the agency should be defined either by formal power of attorney or by a memorandum in writing.

An agent who is authorized to accomplish a given result is usually considered, by implication, to be possessed of authority to do any act necessary to effect such end in a reasonable and prudent way.

Practically speaking, the more indefinite the language defining the power of the agent, the broader and more general will be his authority, and conversely, the more explicit the language,

the more closely will the agent be held to its terms. It is a common error for one who wishes to give a general power of attorney to make great efforts to enumerate every conceivable act which may be performed. Human foresight being fallible, the probability is that the one essential act will be omitted, with the result that the very explicitness defeats its own ends and the agent is confined to solely what has been enumerated. A half a dozen lines giving a general authority to act for the principal in every case, and enumerating almost no specific instances, would, in general, result in granting a power so broad that little could be deemed beyond its purview.

Principal.—The principal owes to his agent the duty of paying the agreed remuneration for his services; of performing the agreements which his agent shall lawfully make in his behalf, and of saving the agent harmless from any personal liability for such acts.

Agent.—The agent owes to the principal the duty of faithful performance of the acts committed to him, with reasonable diligence and prudence. He cannot make personal profit from his acts as agent; all such profits belong to the principal. He occupies a position of the utmost responsibility, and is held to the highest measure of good faith.

For a breach of these duties he incurs not only the danger of having his principal refuse to accept his acts, and so becoming personally responsible to those with whom he has dealt, but he may also be held liable to the principal for losses resulting from his acts.

The only safe rule for an agent to pursue is to make absolutely certain that he clearly understands the limits of his authority, and then to transact the business entrusted to him with an eye *absolutely* single to his principal's interests. The thought of his self interest must never swerve him a hair's breadth from his duty to the principal.

It may sometimes occur that an agent will derive personal prestige from successful accomplishment of his principal's busi-

ness, but he should never, without his principal's consent, derive pecuniary profit other than his agreed recompense.

b. Principal's relation to third persons.

These may be very briefly stated.

So long as the agent does not exceed his authority, the principal is liable to third persons for every act which the agent may perform to the same extent as though such acts had been done in person.

In addition, a principal is sometimes held liable to third persons for unauthorized acts of his agent, if guilty of carelessness or negligence in permitting his agent to perfom such acts.

An agent's unauthorized acts may take several forms:

1. He may do an act totally unconnected with his agency, and which could not be considered by any prudent man as incident thereto. For such acts the principal is never liable if he promptly disavows responsibility.

2. The agent may commit an unauthorized act which is in some measure related to his real duty and might reasonably be considered to be a part thereof by one not fully cognizant of the limitations of his authority.

The question then is, whether the principal is bound by such an act. The answer is not altogether simple, but must be determined by the following test:

The principal is bound by all acts of the agent which are within the scope of the authority which the agent reasonably appears to have. In other words, the principal, to protect himself, must see that he never knowingly permits his agent to act in a way which would justify the public in supposing that the agent had powers which in fact he did not possess.

This seems a somewhat harsh doctrine, but it is based upon the theory that if one takes the risk of delegating power to another he must be willing to accept all the reasonable consequences of so doing.

3. An agent sometimes purports to act for a former principal after his authority has been revoked. What is the liability of the former principal?

A general agency once established is presumed to continue

until notice is given of its termination. That is, when a third person has been in the habit of dealing with an agent, he is justified in continuing to do so until notified that the agency is at an end.

A principal is bound, therefore, if he would terminate an agent's power, to take every precaution possible to a reasonably prudent and cautious man, to notify all those with whom the agent has been dealing that the relationship is at an end. Otherwise, a principal may sometimes find that a former agent has involved him in liability and expense.

c. Relation of Agent to Third Persons.

When an agent obeys his instructions and does not exceed his authority, and *lets it be known that he is acting as an agent,* he incurs no personal liability whatever.

He may be held personally liable, however, for unauthorized acts which he commits, upon the theory that, having agreed to do something beyond the scope of his authority, it became in effect merely his personal venture.

It sometimes happens that an agent, even though he be acting within the scope of his authority, neglects to tell the person with whom he is dealing that he is an agent. That is, he, to all appearances, is acting on his own behalf. If he does so, such third person has the option of holding liable *either* the agent or his principal, upon discovering the latter's identity. It will thus be seen that it is extremely unwise for an agent to conceal his real standing. It may result in heavy personal liability. If the exigencies of a principal's business require that his name should be concealed and the agent be the apparent party in interest, the agent should require ample security for assuming the risk involved.

Principal's Liability for Agent's Wrong Doing.

Heretofore we have treated of the agreements or contracts which an agent may make or purport to make for his principal. There is, however, another point to be considered.

It sometimes happens that an agent inflicts actual physical damage either to the person or property of a third person. Thus,

a truckman may so carelessly and negligently drive his employer's wagon as to cause injury to life or property. What is the employer's or principal's liability?

It is closely akin to that arising out of the agent's agreements or contracts.

If, when the accident occurred, the agent was engaged in doing that for which he was authorized, then his principal is liable for any carelessness or negligence of which he was guilty.

A good example of this doctrine has recently come before the courts:

A chauffeur, using an automobile in accordance with his employer's orders, negligently runs over and injures a man. The employer is liable for damages. But let us suppose that the same chauffeur, knowing that his employer is away, uses the automobile to entertain a party of his own friends, and while so engaged negligently causes an accident. His employer is not liable. The reason for this is, obviously, that in the first case the agent or servant was engaged in the business which his master directed him to perform, while in the other he was acting in violation of his duty.

So it will be seen that when the agent is acting within the scope of the authority which he apparently possesses his principal is responsible for all the results which follow therefrom, even though such results shall occur by reason of the carelessness of the agent. Here again will be seen the doctrine that if a principal entrusts to another a duty which he would otherwise personally perform, he must stand responsible for the acts of that individual.

Duration of Agency.

Like other contracts, an agency may be for a definite time or purpose, or it may be unlimited in duration. If the term or purpose of the agency be defined, it is obvious that at the expiration of the date or the performance of the designated duty the relationship terminates. If the agency is for an indefinite time, it may be terminated at any period that the principal or the agent choose, but it is, of course, obvious

that the right to terminate when exercised by either the principal or agent against the wish of the other must be so exercised as not to inflict unreasonable harm. Thus, a reasonable notice of the intent to terminate an agency should be given.

There is one exception to the right to terminate an agency without mutual consent. It sometimes occurs that an agent is given by his principal an interest in the business which he is delegated to perform. Thus, an agent may be authorized to erect a certain building and be given as recompense a commission upon the cost. It would be obviously unfair to arbitrarily terminate this agency and deprive the agent of his interest therein. In such cases as these, where the agency is said to be coupled with an interest, it cannot be terminated without the consent of the agent. Of course, even in this instance incompetency or other misbehavior on the part of the agent would justify its termination.

An agency is also terminated at times by law. Thus, an agency to rent a particular building is terminated if the building be destroyed. So, the death or insanity of either principal or agent terminates the relationship.

Capacity of Agent and Principal.

Anyone who is legally capable of entering into an agreement is capable of employing an agent to do the same act. In default of such capacity in the principal, the agent has no authority, for it is clear that no person can transmit to another power which he does not himself possess.

The inquiry as to the capacity of an agent is easily solved. Anyone who is physically or mentally capable of doing the act which he is authorized to do is capable of assuming the relation of an agent, irrespective of whether he would be able to personally perform the act in his own behalf. Again will be noted the fact that the agent simply stands in the position of his principal.

Practical Suggestions.

The foregoing gives a most fragmentary and condensed statement of the very important law of agency. It will have served

its purpose, however, if it shall have disclosed the danger which an individual encounters when authority is delegated. In order to avoid repetition, much that is said under the general head of contracts has been omitted from the subject of agency. The two sets of notes must be read jointly.

It is of the utmost practical importance, however, to all business and professional men that they should have a true understanding of the power which they place in the hands of subordinates. It is a most customary thing to see employes placed by their superiors in positions of responsibility and in representative capacities where their power for harm is unduly great. Often, without the presence of any dishonesty, incompetency makes possible loss and serious embarrassment. Every employer, therefore, should scrutinize with extreme caution the work which he requires of his subordinates, particularly of those who are frequently away from his direct supervision. No subordinate should ever be permitted to make contracts or agreements for his employer until time and experience shall have proved his ability and worth. It frequently happens that an employee is given the authority to do an act which is harmless in itself, but which may justify the person with whom he deals in assuming that he possesses much wider power. Great care should be taken to avoid this serious situation.

So far as the agent or employee is concerned, the problem is a much simpler one. So long as he makes certain that he possesses a thorough understanding of the duties which are required of him, and is always in a position to disclose the fact that he is acting in a representative capacity, he incurs no serious legal danger.

PARTNERSHIP.

One of the most important forms of contract which a business or professional man is likely to make is that of partnership. Comparatively few business enterprises are now conducted by an individual alone, and professional men are almost equally likely to find it to their advantage to unite their efforts for the successful prosecution of their work. The ease and informality surrounding the formation of a partnership result in the creation of many firms whose members have, at most, only a hazy and indefinite idea as to the obligations which they have assumed. For this reason it is a matter of far too common occurrence to find the courts engaged with suits for the dissolution of partnerships or the adjustment of differences which have arisen between individual members.

The law of partnership, owing to the wide variety of purposes for which firms are formed, presents a complex structure. The layman who attempts to master the subject finds himself almost at once involved in niceties of distinction and form from which he is able to extract very little satisfaction.

It is, however, as in most other branches of the law, entirely possible for the layman to familiarize himself with general principles, and to become well informed as to the dangers which should be avoided when he contemplates entering a firm or copartnership. It is probable that anyone of even limited business experience has a general idea of what partnership is, but before it is possible to consider the legal aspects of it, a formal definition must be considered. Like other legal definitions, it must be carefully studied, for it is phrased in such a way as to comprise all of the essential elements of the relationship which we are considering.

What Is a Partnership?

A partnership is an association of two or more persons who have agreed to combine their labor, property and skill, or some of

these things, for the purpose of engaging in a legal trade or business and sharing the profits and losses as such between them.

Persons.

It will be noted that the number of persons who may comprise a partnership is unlimited. While a majority of firms consist of from two to four members, it is of quite common occurrence to find some copartnerships consisting of fifteen or twenty. This is frequently the case in firms which have international and inter-city connections. Whether the membership numbers two or twenty, however, the relationships established are precisely the same. Partners are classed as general or special partners, a general partner having an unlimited liability for the firm debts, and a special partner having his liability limited to a definite amount which he has contributed to the partnership assets. Mention is made here of this classification of partners in the interest of orderly analysis. It will be subsequently discussed under the title of "Limited Partnership."

In order to enter into the contract of partnership, an individual must have capacity as defined and explained in the article on "Contracts."

Agreement to Combine Assets.

A partnership agreement is a pure contract entered into between the various partners, the consideration being the mutual advantages which are expected to flow from the relationship. Each partner contributes something to the common property. It may be money, it may be tangible property, or it may be individual skill or ability. All these are regarded as proper assets of a copartnership. It is a very common thing to find the entire cash assets of a partnership supplied by one of the members and the technical knowledge or skill by another. The latter asset is often much more valuable than the former.

Duration of Partnership.

A partnership may be for a definite period of time, or the date

of its expiration may be left uncertain, in which case the contract of partnership is a continuing one. In the former instance the contract expires upon the day fixed. In the latter instance it continues until it is dissolved by the act of one or both of the partners, or by operation of law. These questions we will consider later.

Legal Trade or Business.

It must be carefully noted that the purposes of the partnership must be legal and must contemplate that the partners are to engage in some business enterprise calculated to result in profit. An association for social, educational or philanthropic purposes does not constitute a copartnership. Such organizations as these fall under a different branch of the law.

Profits and Losses.

A partnership agreement contemplates that the burdens or benefits of the operations of the firm shall be shared by all of the partners. One who is exempted from all responsibility for a firm's business is not in any sense a copartner.

The foregoing considerations should be sufficient to constitute a foundation for the more technical side of the subject under consideration.

Nature of Relationship.

A copartnership is distinguished from a corporation by the fact that the latter has a separate existence derived from the sovereign authority, while a partnership has no existence whatever aside from the personality of its various members. A corporation can act in its own name just as a private individual might. A partnership is obliged to act through its individual members. Thus, a suit by or against a partnership is brought in the name of the individual members, as for example, "John Doe and Richard Roe, together composing the firm of Doe & Roe." In practical operation the partnership is known by the name of "Doe & Roe," and uses this title for a

signature to checks and some other informal purposes. But this is done, not because the firm of Doe & Roe has any separate existence, but by reason of the fact that persons with whom the copartnership deals have agreed to accept the signature of "Doe & Roe" in place of the full names of the several partners. When a firm name has once been adopted, any one of the partners is authorized to use that signature. It becomes a part of the partnership assets.

Scope of Partnership.

This subject constitutes one of the most important elements of the partnership agreement. In our consideration of the subject of agency a vital point was the scope of the authority which the agent possessed. This was found to be important because of its bearings upon the relations of the agent with third persons.

Just as an agent may be appointed for any object or undertaking which the principal may elect, so a partnership may be formed for any legal purpose which the partners agree. Rarely is a partnership general in the sense that its field of operations is unlimited. Its operations are usually confined to some particular business or profession, and the purpose for which a partnership is formed is known as the scope of the partnership. Every partner is the general agent of every other, and applying the principles of agency already learned, it will be noted that the agency of one partner for another is limited to acts within the scope of the partnership. Thus, if a firm be formed for the purpose of general construction, every partner will be at liberty to use the firm name, to bind its credit and to involve it in contracts which might legitimately be said to be incident to the purpose for which the partnership was formed. A partner could not, however, enter upon the purchase and sale of stocks, or attempt to transact the business of a broker, and in so doing involve the firm property. It would simply be a case of an agent committing an unauthorized act, and the sole result would be to inflict a personal liability upon the partner attempting it.

Practically, therefore, it is of the utmost importance that

when entering a partnership an individual should insist that the scope of the partnership should be accurately defined, and not only that, but having settled this point, the prospective partner must go beyond the agreement which he makes with his future associates, and carefully determine whether the objects of the partnership as defined in this private agreement imply any more extensive enterprises, and whether the operations so specified would be likely to lead the general public to believe that the partnership had other purposes in view. As in the case of an agency, the general public will not be bound by any private agreement between partners as to the scope of the partnership or the powers of its respective members. Outsiders are simply chargeable with knowledge of what is apparently the business of the firm and the seeming powers of the partners. For example, the partnership agreement might provide that no partner should sign any contract for the partnership without submitting it to a majority of the firm, but this agreement would have no effect upon an outsider who in good faith entered into a contract with a member of the firm who was acting in violation of this provision.

Again, a partnership might be formed for the purchase and sale of railroad bonds, and by agreement the partners might limit their operations to this field. So closely akin, however, to such a business would be the purchase and sale of other negotiable securities that an outsider would probably be justified in assuming that one of the partners had the power to buy railroad stocks and be protected in dealing with him, even though such partner was violating his partnership agreement. It is a very simple thing to enter into a partnership, but a very difficult thing to escape from subsequent liability. Protection must be had at the outset by the exercise of extreme caution and vigilance in order to arrive at a thorough understanding of the liabilities which are about to be assumed.

Formation of Partnership.

Like any other contract, a partnership agreement may be either in writing or oral. If not in writing, it may be either express or implied.

The partnership agreement should, by preference, always be carefully expressed in writing. Much trouble will be avoided by pursuing this course. As has been previously intimated, it should contain a careful statement of the objects of the partnership, its duration, and the respective rights and liabilities of the partners as between themselves. It is a very common thing to have the respective partners unequally interested in the firm, a certain percentage of profits being given to each. All such questions should be the subject of careful and explicit expression. No one should ever voluntarily enter into a partnership which is based upon oral agreement. Make the written instrument as informal as desired, but such a paper should always be in existence.

Involuntary or Implied Partnership.

It frequently happens that, without any intent, an individual finds himself held as a general partner in some operation in which he has been engaged. A man may be persuaded by a friend to invest money in a promising business proposition. The money is placed in the business with the expectation that if the venture be profitable the capitalist will share in its prosperity. He may have supposed that he was simply accommodating a friend. As a matter of fact, in case of disaster to the business, it is quite as likely as not that some disappointed creditor will seek to make him responsible as a partner, and will probably succeed.

No one, therefore, should permit himself to become interested in any business operation to an extent of sharing in the profits without realizing the dangerous relationship which he is assuming. If money be loaned to another for use in a particular business, its character should be clearly defined. It should bear a definite rate of interest, and it must be understood that such payment is not dependent upon the success or failure of the business operation. This last element is generally said to be the test of a true partnership, namely, the sharing in profits and losses. If this point be borne in mind, there is little danger in becoming involved in an involuntary partnership.

INTER-RELATION OF PARTNERS.

The student who has mastered the principles of agency needs little added information upon this branch of the subject. As between themselves the relations of partners are precisely what they may agree in their articles of partnership. Again, let it be noted that this does not necessarily mean that such agreements will be binding upon outsiders, but the responsibility of one partner to another is determined thereby. The partners become joint owners of all the partnership property in the proportion defined by the partnership agreement. As has been said, each partner is the general agent of every other partner for the purposes of the partnership. This general agency may, as between the partners, be limited by the partnership agreement, and one partner may have more power than another. This, however, is a private matter between them.

The question of the interest of one partner in firm property is somewhat complicated by reason of the fact that a partner, although he undoubtedly possesses property rights in the partnership assets, cannot assign his interest to anyone else. This springs from the fact that the relation of partners is so intimate and close that the law will not compel the introduction of a new partner not acceptable to all of the old partners. If A is a partner of B and C, he cannot assign his interest to D, and thereby make D a partner. B and C would have undoubted right to protest. But if the term of the partnership is indefinite, so that it may be dissolved, A may insist that all of the partnership assets shall be turned into cash and withdraw his interest. A concrete example will illustrate this point:

A and B decide to purchase a growing crop of hay for $100, each contributing $50 of the purchase price. A becomes desirous of disposing of his interest and sells it to C. He may do so.

Let us suppose, however, that A and B are partners and the partnership of A and B buys the growing crop. Under these circumstances A has no right to sell his interest, for by so doing he would attempt to bring into the partnership a third person. If the partnership were subject to dissolution, A's proper course

would be to insist that the growing crop should be sold and the money divided.

If there are more than two partners, in the absence of express agreement, and generally speaking, a majority of the partners will control the operations of the firm. If there are only two partners, it is quite possible that a disagreement may result in a total stoppage of business. The Articles of Partnership in such a case should always provide for a determination of such questions.

In case of the insolvency of the partnership, if a creditor collect his entire debt from one partner, as we shall subsequently see he may, such partner has a right of action against his associate partners for their proportionate share of the debt. This is what is known as "contribution," and is again explained by the fact that the respective liability of partners for firm debts is a matter of private agreement among them.

Relation of Partners to Outsiders.

Here we face the most serious question of partnership law. Every person who enters into a general partnership becomes personally liable to the extent of his entire fortune for the debts of the partnership. If, on the bankruptcy of a firm it should be found that one partner was possessed of outside resources, while the other members of the copartnership were personally bankrupt, the creditors of the firm might look to the one solvent partner for repayment of all of the firm's debts. When this phase of the case is coupled with the power which one partner has to bind the firm, it will be seen that one who enters a partnership is treading upon dangerous ground, so dangerous, in fact, that the trend of modern business is away from partnerships and toward the formation of corporations where the individual liability of those interested is limited to the amounts of capital which they have invested in the enterprise. Those who deal with a firm are justified in negotiating with any one of its members, and will be protected in the agreements which they make with any of the partners, unless they have actual knowl-

edge that such partner is limited in his authority. It hardly need be said that if an outsider were given a copy of the partnership agreement, he would then be bound in his dealings with the partnership by its terms, but this course is obviously impossible. Outsiders in dealing with a firm are simply chargeable with knowledge of the general business of the firm, the customs of the trade or profession in which it engages, and such general information of that particular partnership and its method of doing business as they have acquired from past dealings. Having in mind the information derived from these various sources, if an outsider acts with ordinary and reasonable diligence and prudence, he will find that he will be protected in his dealings with the firm, and may hold any of the partners liable for the contracts which he makes with it.

It has been said that firm creditors may not only satisfy their claims out of property which is actually owned by the partnership, but after this has been exhausted may look to the private resources of the partners, but the converse is not true. Individual creditors of a partner have no right to seize upon partnership property, as such, in order to satisfy personal liabilities of any one of the members. Such property may be reached, but by a different procedure. As will be shortly seen, the insolvency of a partner dissolves the partnership, whether the term for which it was formed has expired or not. If, therefore, one partner becomes insolvent, it is generally customary for his creditors to apply for a formal dissolution of the partnership, a sale of its assets, and a distribution to each partner of his interest therein. The interest of the bankrupt partner in the firm can then be seized by his personal creditors. A personal creditor of one partner, however, would never be allowed to actually acquire an interest in a going concern, for here again it would enable him to enter into a confidential relationship with the other members of the firm, which the law would not permit, against their will.

Limited Partnership.

In order to avoid the severe liability of a general partner, the law has provided that what is known as a "lim-

ited partnership" may be formed. A firm may be composed of general and ***special*** partners. To the general partners, who are liable, as above noted, falls the care and conduct of the business. The special partner merely contributes to the firm's assets a definite sum of money, which he puts at the hazard of the business. In return he draws such share of the profits as may be agreed upon. The special partner, however, cannot be active in the management of the business, or conduct its operations save in an advisory capacity to the general partners. The liability of such a special partner is limited to the amount of capital which he puts into the firm, and firm creditors cannot look to his private resources. It should be noted that no firm can consist exclusively of special partners. There must always be one or more general partners to conduct its affairs. The formation of a special or limited partnership is extremely technical, and the cases are numerous where a failure to fulfill technical requirements of statute has resulted in holding those who supposed themselves to be special partners to the liability of general partners. No one should ever attempt to form a special partnership without legal assistance.

DISSOLUTION OF PARTNERSHIP.

A partnership may be dissolved by any of the following causes:

1. By limitation.
2. By death or insolvency of one or more of the partners.
3. Business becoming illegal.
4. By act of the partners.
5. By judicial action.

1. If the term of the partnership is fixed by the partnership agreement, a dissolution occurs on the date fixed, without further act of the partners. If it is desired to continue the partnership longer, a new agreement should be entered into. Unfortunately, it is very common for partners, at the expiration of the original partnership, to take no action and proceed to carry on the business as if the agreement was still in force. This method is satisfactory

so long as no disputes arise, but in the eye of the law, on the date fixed for the original partnership that firm passes out of existence, and while the original partnership agreement may be of value to determine the terms of the subsequent agreement, which is in effect merely an oral one, yet in fact the original agreement is of no binding force whatever. Care should be taken to mark the date of expiration of the partnership, and at the appropriate time new articles should be signed.

2. The death or bankruptcy of a partner immediately terminates the relationship, for, as has been previously noted, the law will not permit the personal representatives of a deceased partner or the assignee of a bankrupt to become partners in the firm against the wish of the surviving partners. In some cases, of course, the surviving partners give their consent, and the estate of a deceased partner is represented in the future business, but this is in the eye of the law the formation of a new partnership.

3. If a case can be conceived where a change in the law renders illegal the business carried on by a partnership, it would at once follow that the partnership would at that moment be dissolved, for the courts would not extend their protection to an association or to individuals engaged in violating the law.

4. The most common method in which a partnership is dissolved is by the act of the partners themselves.

It is hardly necessary to say that a partnership might be dissolved at any time by the unanimous consent of the partners. If it is for an indefinite period, any one of the partners may at any time withdraw from the firm. This must be done with due regard to what is fair and just to the surviving partners, due notice being given and other precautions being taken. In this country it has also been held that even though the term for which the partnership is formed has not yet expired, one of the partners may withdraw therefrom, although by so doing he lays himself open to an action for breach of contract. But the courts have declared it to be the policy of our law that no man shall be compelled to remain in a partnership after the personal relations of the partners have become so changed as to jeopardize the success of the business.

5. If the relations of one partner to his associates become so strained that it is manifestly impossible to continue the association, or if the business carried on by the partnership becomes unprofitable, any one of the partners may apply to the court for a dissolution, and the court will extend its aid to effect this result. In general, a receiver will be appointed for the assets of the partnership, its affairs will be wound up with all convenient speed, and a distribution made among the partners of their respective interests. This method of procedure is one which is often invoked, and provides the safe avenue of escape from a position which becomes untenable. In case of the dissolution of a partnership, the partnership assets are distributed as follows:

a. All debts of the firm to outsiders are paid. If there are not sufficient assets to satisfy these claims, each partner must contribute his proportionate share to make up the deficit. If any one of the partners is unable to do so, the share of such an one must be made up by the other members of the copartnership.

b. After payment of all claims to persons other than the partners, repayment is made of money which has been loaned to the firm by the individual partners. In default of sufficient assets to repay these loans, they should be paid ratably.

c. Next in order will be the repayment of capital invested by the partners. If insufficient funds are available to repay capital in full, the partners should be reimbursed proportionately to the amount which they contribute.

d. Any sums remaining after the payment of the foregoing liabilities should be distributed among the partners in proportion to their interests in the partnership, as defined by the Articles of Partnership.

NOTICE OF DISSOLUTION.

Under the subject of agency we considered the necessity of giving ample notice of the termination of an agent's powers. The same is true in the case of the termination of a partnership. There is always danger in the event that a partnership has terminated in a disagreement of the partners, that one

of the partners may, subsequently to the dissolution, involve his firm associates in obligations of which they are ignorant. Particularly is this true if there is any suspicion of dishonesty or double dealing. Upon the dissolution of a partnership all reasonable precaution should be taken to give wide publicity to the fact. This is generally accomplished by advertising for a more or less extended period in the public press that the firm no longer exists. In addition, notice should be sent to all those with whom the partnership has done business, so that personal notice may be received as far as possible. Having taken these precautions, it is altogether probable that no further liability will be incurred. It should be said that the law does not require that upon the dissolution of a partnership actual notice should be given to everyone with whom any one of the retiring partners might possibly deal. It is, however, required that such steps should be taken that the court will be able to say that all reasonable efforts were made to effect this result. The course pursued may vary in different cases, depending upon the nature and extent of the business of the partnership.

CONCLUSION.

It will be obvious from the foregoing that the relationship of one partner to another is of a nature so extremely confidential and close that it is not unreasonable that the law requires, as between the partners, the utmost good faith and honesty. No one partner should be allowed to make a personal profit out of the partnership business which is not shared by his associates. Each has a right to expect and exact from every other partner that the interests of the partnership shall be placed before the interests of any individual member. The common weal of the firm must be the first care of its members, and the slightest lapse from the highest standard of personal rectitude, or honest and fair dealing, is certain to involve the partners in discussion and litigation, which in the vast majority of cases is acrimonious and bitter to a degree. Do not take a partner without the most careful and minute scrutiny of his previous business dealings, reputa-

tion and character. It must be remembered that each partner holds the honor, reputation and financial standing of each of his associates in his keeping. Such a responsibility is one which is not to be lightly assumed or conferred. If, after the formation of a partnership, events should transpire which create dissension between the partners, or create the slightest doubt of the probity or ability of an associate, the partnership should be terminated at once at any hazard. It is impossible, as a practical matter, for a partnership to long continue after the destruction of mutual confidence and faith. There have been cases where partners who were personally hostile to each other have merged their private feelings in their business judgment, and have continued successfully the business of the firm, but such a course is almost certainly foredoomed to failure, and the attempt to effect this result should never be made if it can possibly be avoided.

NEGOTIABLE INSTRUMENTS.

The problem of transferring financial credits without the actual payment of money or other standards of value is one which confronts every business or professional man. Its origin was almost coincident with business dealings between men, and the methods of solving it have grown and developed step by step with economic progress, until today 99 per cent. of all financial dealings are accomplished without the use of actual cash. The history of this development is one of absorbing interest to the student of economics, but would be out of place in a consideration of practical business methods. A few words of explanation, however, will simplify the technical points to be considered.

What Is a Negotiable Instrument?—Taking the most common form of negotiable paper, namely, government notes or bills, it will at once be noticed that the most striking attribute possessed by them is the freedom with which they pass current. A government note is simply the promise of the United States to pay the bearer on demand a specified sum of gold, which is our standard medium of exchange. It has absolutely no intrinsic value. Its worth is based solely upon the financial credit of the government, yet it passes current freely at its face value. If the credit of the government became impaired, the value of its outstanding notes would be proportionately diminished. An example of this occurred during our civil war.

A gold note passes from hand to hand until physically destroyed. It is as good in the hands of one person as another. No one makes any inquiry about a previous owner. It is equally valuable in the hands of a thief who steals it as in the custody of one who comes by it honestly. This quality is denominated its *negotiability*. A gold note is the best example of completely negotiable paper.

Like government notes are those issued by banks, save for the fact that the credit upon which they are based is technically that

of the bank which issues them. In practical operation, however, under our financial system an issue of notes by a bank is secured by a reserve fund sufficient to obviate any necessity of investigating the financial standing of the institution.

But it is obvious that even the convenience of having government and bank notes does not provide for all the exigencies of modern business, and consequently we find individuals issuing their personal notes for specified amounts. These notes constitute a pure contract for the payment of money, but it is a form of contract having special attributes, arising out of the policy of the law to protect and facilitate the safe transaction of business.

It is these special attributes which give rise to the body of law, known as the Law of Negotiable Instruments.

The interest of a party in an ordinary contract can generally be assigned. That is, unless the agreement contemplates the personal efforts of one of the parties, a party can transfer his interest to a third person. Such third person thereafter occupies precisely the same position as the original party.

This quality of a contract is known as its assignability. But it is obvious that such third person occupies no better position than his predecessor. In the event of a dispute over the contract he is as much involved as though he were an original party. Hence he must investigate in each case not only the standing of the other parties to the contract, but also its terms.

Obviously, a contract weighted with these drawbacks could not pass current in the business world as an equivalent of money. Something more is required of such an instrument. The holder of it must by looking at it, gain all the information necessary to form his judgment of it, and he must be sure that nothing arising out of the personal relations of the original parties will embarrass his title. He must be free from the possible disputes which might arise between then. When he is in possession of such an instrument he has one which is negotiable, instead of merely assignable. This distinction must be kept clearly in mind. It will therefore be seen that the person who holds a negotiable instrument at second hand, that is, a transferee of it, is often in a better position than the person from whom he obtained it. Thus, A makes a note

to B to pay for certain services alleged to have been rendered. B transfers it to C. So long as the note remains in the hands of B, A may resist its collection on the ground, perhaps, that it has subsequently developed that the services were improperly rendered; but once the note passes in due course to C, A's defense is gone, and he must pay the amount of the note.

This attribute of negotiable instruments is a purely arbitrary one, and finds its reason and sanction in the general consideration that it is for the public good that business should be facilitated.

So much by way of example, and to point the distinction between an assignable and a negotiable instrument.

The importance to business and professional men of some knowledge of the law of negotiable instruments is perhaps more obvious than in other branches of the law. Its field covers the practical transactions of everyday life. Notes and checks are as common as bills and silver. Their function and the rules regarding them are all important.

Hitherto we have spoken only of notes as examples of negotiable paper, but the classification also includes drafts or bills of exchange and checks. These we will discuss in due course.

Essential Elements of Negotiable Paper.

While the general form of a negotiable instrument is not important, there are certain elements which *must always be present.* They are as follows:

a. Written Instrument.—The instrument must be in writing and signed. This is, of course, in the interest of accuracy.

b. Unconditional Order or Promise.—There must always be an *unconditional* promise or order to pay in money, for if the obligation or direction expressed in the paper is in any way qualified, it at once injects an element of uncertainty into the transaction, which would prevent any third person from relying upon its terms.

c. Definite Amount.—The amount of the payment must be definite, otherwise there would be no certainty as to the value of the paper.

d. Definite Date.—It must be payable at a time definitely stated, or which may be certainly determined. Any ambiguity as to the date of payment is fatal. A note payable "on demand" or at a fixed time after the happening of any event which is certain to occur, is allowable.

e. Payable to "Bearer" or to "Order."—If an instrument is simply made payable to a definite individual it is not negotiable, for it confers no power to transfer to another. It should always read payable to "the order" of such a person, thus giving authority to the payee to name someone else to receive the proceeds of the instrument.

An instrument drawn to "bearer" is good in the hands of any person into whose possession it may come.

f. Name of Person to Whom Order is Directed.—In the case of a check or draft, the instrument must designate the person who is authorized to make the payment specified.

g. Delivery (i. e., transfer of possession with intent to transfer title).—An undelivered bill or note is inoperative.

DEFINITION OF TERMS.

One who signs and issues a note is known as the *maker.* The person to whom it is payable is denominated the *payee.* If the payee transfers the instrument he becomes the *transferor,* and if he endorses it, the *endorser.* The person to whom it passes becomes the *transferee* or *endorsee.*

One who signs a check or draft is known as the *drawer.* The person to whom the draft or check is payable is the *payee,* and the one to whom it is directed is known as the *drawee.*

COMMON FORMS OF NEGOTIABLE INSTRUMENTS.

Note.

$1,000. NEW YORK, January 2, 1905.

Six months after date I promise to pay to the order of (Payee) John Doe One Thousand Dollars, for value received, at No. 1 Broadway, New York, with interest.

(Maker)
RICHARD ROE.

Check.

No. 5. New York, January 2, 1905.

(Drawee)
National Bank of New York.

(Payee)
Pay to the order of John Doe

One Thousand....................................Dollars

$1,000. (Drawer)
Richard Roe.

Bill of Exchange or Draft.

$1,000. New York, January 2, 1905.

(Payee)

Ten days after sight, pay to the order of John Doe, One Thousand Dollars, value received, and charge to my account

To

(Drawee) (Drawer)
John Smith & Co., Richard Roe.
30 Broad Street,
New York.

It will be noted that a check is practically a draft on a bank, payable on demand or "at sight."

For all practical purposes, therefore, negotiable instruments are of two kinds, promissory notes and drafts. In practice, a check is used to draw on a firm or institution where money is kept on deposit for that express purpose, while a draft proper is used to withdraw special credits from business houses.

Acceptance of Drafts.—A draft is said to be accepted when the drawee acknowledges the obligation. This is usually done by writing across the face of the check or bill the word "accepted," followed by the name of the drawee. Banks in accepting checks usually write the word "certified."

The effect of accepting a draft is to charge the acceptor with liability for the amount involved. It becomes his obligation. Until then the acceptor is under no liability whatsoever. He has not become a party to the instrument.

TRANSFER OF NEGOTIABLE INSTRUMENTS.

A negotiable instrument is transferred by endorsement and delivery for value, before maturity and without notice of any defects.

An instrument is endorsed by the payee writing upon the back his name and such other direction as he may see fit. The following are the usual forms:

1. *Blank Endorsement.*—When a payee simply writes his name upon the back of a negotiable instrument it operates as though the paper had originally been made payable to "Bearer." Thereafter it is good in the hands of any person to whom it may come.

2. *Restrictive Endorsement.*—If the payee endorses the check by designating some definite person to whom payment is to be made, he restricts the payment to that single individual, thus—

Pay to the order of John Smith.

JOHN DOE.

Here only John Smith can collect the amount originally payable to John Doe.

3. *Endorsement Without Recourse.*—It sometimes occurs that it is desirable to endorse an instrument without incurring the liability which, we shall presently see, usually attends the act. In this case the endorsement should read:

Endorsed without recourse.

JOHN DOE.

In endorsing an instrument care should be taken that the payee sign upon the back precisely the same name which appears on the face of the check. Thus, if a check be drawn to the order of John Doe, it should never be endorsed J. Doe alone. Even if the payee be erroneously named on the face of the check, it should be endorsed in the same form on the back and the error rectified by adding the correct name.

The matter of exact endorsement is important.

A paper may be endorsed as many times as desired by successive holders.

Liability of Endorsers.

Unless an endorsement be without recourse, each endorser becomes a surety for the payment of the instrument when due. Extreme care should be taken, therefore, not to endorse commercial paper unless there is a willingness to become liable for its collection.

Value Received for Transfer.

In order to preserve its character of negotiability an instrument must be transferred for a valuable consideration. In other words, if no value be given when the note is received, the transferee is not given the protection usual to the holder of a negotiable instrument. Like the consideration for any other contract, this "value" may take a variety of forms, but in some form it must be present.

Maturity.

A negotiable instrument is said to mature upon the date it is payable. A transfer by endorsement, to be valid, must be effected before that date.

The law presumes that negotiable instruments will be paid when due and makes no attempt to protect those who receive them after due date.

Without Notice of Defect.

It is obvious that one who receives a negotiable instrument will only be protected if acting in good faith. If, as a matter of fact, one receives such an instrument, knowing of some fact which destroys its value, he will not be protected from the consequences.

Innocent Holder.

One who receives a negotiable instrument, for value before maturity, and in good faith, is said to be an innocent holder, and the paper is said to have been transferred in due course.

The way is now clear for a consideration of the position

occupied by an innocent holder of a negotiable instrument. Let us suppose that, on the 1st of June, C is offered by B a note for $1,000, dated April 1, payable three months after date to the order of B, and signed by A. B is ready to properly endorse the note. C knows that A is entirely responsible; he therefore pays B $1,000 and receives the note.

It will be noted that C paid value for the note, that he received it before it was payable, and we assume that he knew of no defect in the note which would diminish its value. C's position is as follows: When the time arrives for the presentation of the note, being an innocent holder of the instrument, there is no danger that A will contest the validity of the instrument by reason of any defects growing out of the relationship between A and B. It may be that had the note remained in B's possession, A might have refused payment, as has been previously noted, upon the ground that B had given no consideration for the note, or that the consideration had failed, or that B was already indebted to him in other transactions. Such defenses as these are known as personal defenses and concern the equitable questions arising between A and B. They are sometimes called the equities of the transaction. The instant, however, that B transferred the note to C, an innocent holder, the paper being negotiable, and under the protection of the law of negotiable instruments, all such personal defenses were nullified, and A will not be heard to say that there was any lack of consideration for the note or that there is any equitable reason why it should not be paid. In legal phraseology this condition of affairs is expressed by saying that the transfer of negotiable instruments to an innocent party, in due course, "cuts off the equities."

If, however, C had taken the note from B after the date fixed for payment, the above state of facts would be altered. By so doing, he would cease to be an innocent holder in due course, and while the transfer from B would serve as an assignment of any interest which B had in the note, C would take it subject to all the equitable defects in B's title. A similar state of facts would arise if C paid no consideration for the transfer or if he had actual knowledge of an equitable defense to the note. Under any

of these circumstances the note would have ceased to be negotiable and would simply be assignable, and C would, therefore, receive no better title than B possessed.

There is, however, another class of defects in negotiable paper, which are known as real defects. Thus, if A draw a note, sign it, and place it in his desk, with no intention of delivering it or having it become operative, and the note be thereafter stolen and negotiated, it is obvious that there is a defect in the paper itself. Similarly, if someone forged A's name to a promissory note, and thereafter transferred it.

These defenses are never cut off even in negotiable paper. If such paper comes into the hands of an innocent holder, he receives no better title than the one who transferred it to him, and this real defense is always available to the maker of the note. It is therefore important to notice who are the previous endorsers upon the negotiable instruments, for if a note to which there is a real defense passes into the hands of an innocent holder, his only recourse is to look to the person from whom he received it for recompense. Ordinary care and prudence, however, minimize the danger of receiving defective instruments. An instrument cannot often be subject to a real defense unless someone who has dealt with it is dishonest.

Collection of Negotiable Instruments.

All negotiable instruments should be presented for payment on the date when they are due. This is a most important practical point to remember in cases where there are endorsers to the paper. In order to hold such endorsers to their liability, to which reference has previously been made, it is essential that they should be given prompt notice of the failure of the maker of the instrument to pay according to his agreement. It will be remembered that the statement was made that ordinary endorsers of negotiable papers became sureties for the collections when due. It is only reasonable, therefore, to insist that such instrument shall be presented promptly upon the proper date. It is conceivable that the circumstances of the

maker of the promissory note might change in the course of two or three days, so that if the note were presented on the due date it would be met, whereas, if there were a delay of three or four days the maker would become insolvent. The endorsers are not compelled to assume this risk, and are entitled to have the holder of a negotiable instrument show diligence in collecting it from the original maker.

For this reason the law is extremely strict in requiring not only presentation to the maker at the proper time, but notice to all the endorsers in case the paper be dishonored. This presentation and the method in which it is accomplished is extremely technical. One of the chief functions of notaries public is to present commercial paper for payment. A notary who is an expert in this work is connected with every responsible banking institution, and the simplest way for a business man to properly present his commercial paper is to deposit it in his bank for collection a few days before it becomes due. A considerable risk is taken if one who is not experienced attempts to comply with the requirements of the law in this regard.

If there are no endorsers of a negotiable instrument, the matter of presentation is not so important, because the liability which exists between the maker of the note and the payee is direct, and so long as only these two are concerned the paper is simply a contract, which may be enforced at any time. The maker of the note, however, or the drawer of a check is entitled to have the instrument which they have signed promptly presented, and unreasonable delay in so doing is always dangerous. While this does not always exonerate the maker of such an instrument, it always gives rise to serious complications. Checks should always be collected at once, both as a matter of business prudence and commercial courtesy. Nothing is more exasperating than for one who has issued a check to find that it has been retained uncollected for an unreasonable period.

In some States a limited number of days are allowed after the maturity of a negotiable instrument in which to make presentation. These are called days of grace. In many jurisdictions, however, days of grace have been abolished.

In the case of a note payable on demand, it is somewhat difficult to settle the question of proper presentment. The law requires that such an instrument shall be presented within a reasonable time. If, therefore, one were offered a note payable on demand which had been outstanding for three or four years, it should be regarded with great suspicion. It is a matter of actual fact, to be determined by the circumstances in each case, what is a reasonable period.

Limitation of Negotiable Paper.

Like every other contract, the law fixes a time beyond which the makers of negotiable paper shall not be liable. Thus, in the State of New York six years after the maturity of a promissory note, if no payment has been made as principal or interest, or other acknowledgment of its continued existence given, the liability of the maker ceases. In the case of a demand note, the instrument is presumed to be due on the date when it was made; six years, therefore, from that date the note would become outlawed.

Care should be taken, therefore, if one is possessed of a negotiable instrument which, for any reason, he is unwilling to legally collect, to prevent the period of limitation from running against him. This may be done in several ways. Any payment of principal or interest will serve to effect this. This result is usually accomplished by the payment upon the part of the individual liable of a nominal sum shortly before the period of limitation would run out. Immediately upon such payment being made, the instrument is renewed and the period of limitation commences to run again.

Interest.

Negotiable instruments may bear any rate of interest the maker determines, so long as it is not so large as to be usurious by local statutes. If no rate of interest is specified in a negotiable instrument, it is presumed that interest will be paid at the legal rate.

Delivery.

Mention has been made in passing that negotiable instruments must be delivered. This point should, however, be again emphasized. Such an instrument is never valid unless it is delivered with the intention of putting it into circulation, or allowed to come into circulation under circumstances of gross negligence.

Care of Negotiable Instruments.

A practical consideration for the business man is as to the amount of care which should be exercised in holding or transmitting negotiable paper. The answer to this question depends entirely on the form of the paper. So long as negotiable paper is payable to a definite individual it is not particularly hazardous to send it by mail or to keep it in a business office, with proper precautions. An instrument, however, which is either payable to bearer, or which has been endorsed in blank is, it must be remembered, good in the hands of anyone into whose possession it may come. If in this form, therefore, commercial paper must be guarded with great care and should only be sent by registered mail or express. It is not, ordinarily, very difficult for a dishonest person to negotiate a check drawn or endorsed in the latter form, and although financial institutions usually require the identification of a person who presents bearer checks, they are under no liability if they fall into error. When, however, a check is drawn to the order of a specific person, it requires forgery to obtain its collection by an unauthorized holder.

Conclusion.

The whole law of negotiable paper is extremely difficult. No effort has been made in the present notes to attempt an exhaustive discussion of it. To have done so would only have resulted in leading the reader into difficulties which are properly the province of those having a special knowledge of the subject. It is hoped, however, that the attempt in the foregoing pages to present the more salient features of the law of negotiable instruments will result in imparting sufficient information to enable the student to

obtain a general idea of the problems which he will meet and considerations which should influence him in dealing with negotiable paper. It is a matter of altogether too common occurrence to see financial disaster overtake those who through ignorance and a desire to perform a friendly act have found themselves involved in responsibility for negotiable instruments which they never thought they were assuming. Almost as often it is found that severe losses have been sustained through failure of one who is a holder of negotiable paper to properly protect his interest therein. If these notes shall serve to prevent either of these disasters they will not have been written in vain.

SUPPLEMENTARY NOTE ON DEPRECIATION.

APRIL 15, 1905.

On page 117 of "Lecture Notes on Some of the Business Featüres of Engineering Practice" appears the following:

"It is well here to draw attention to a mistake which is sometimes made in estimating the average life of a plant. Take the case we have already considered and the calculation might be as follows:

Years.		Value of Parts in Dollars.		
10	×	25,000	=	250,000
15	×	50,000	=	750,000
25	×	100,000	=	2,500,000
35	×	150,000	=	5,250,000
50	×	175,000	=	8,750,000
				17,500,000

17,500,000 ÷ 500,000 = 35 years average life."

I then show, step by step, that $6,790, the amount that would be sufficient under a 4 per cent. compound interest sinking fund plan to redeem $500,000 in thirty-five years, if left undisturbed, would not be sufficient to provide for the renewals of the several parts of plant in accordance with the assumed life table.

Although this part of the subject was so covered at considerable length, I now find that it is advisable to go farther, and especially to answer two questions which have been asked.

Some say: "Why should anyone expect such a calculation to give the average life?"

Others say: "While it is apparent that this process does not give the correct result, why does it not do so?"

As to the first question, I can only suggest that those who have fallen into the error have done so by confusing this case with other cases not so complex.

For instance, if we had 25,000 castings weighing 10 lbs. each,

50,000	"	"	15 " "
100,000	"	"	25 " "
&c.,			

we could find the average weight of the 500,000 pieces by the process shown on page 117. Or, if we had 25,000 yds. of cloth costing 10c. a yard, 50,000 yds. costing 15c. a yard, 100,000 yds. costing 25c. a yard, &c., we could find the average cost per yard by the same process.

This answer replies to the first question, but makes the difficulty of those asking the second question all the greater; they now say, "If this calculation is correct in the case of averaging weights, costs, &c., why is it not correct for averaging the life of a plant?"

The reply is that the process would be correct if it covered all the elements of the proposition and was correctly applied.

To better follow the several points involved, let us consider this process of averaging in the case of a plan for meeting depreciation *without the aid of interest accumulation.* In this case, if certain parts of the plant valued at $25,000 are to be renewed in ten years, then each year we must lay aside to meet the depreciation of these parts 1/10th of $25,000. And so we would require 1/15th of $50,000, 1/25th of $100,000, &c. The total amount required each year would then be $17,619, derived as follows:

1/10th	of	25,000	=	2,500
1/15th	"	50,000	=	3,333 1/3
1/25th	"	100,000	=	4,000
1/35th	"	150,000	=	4,285 5/7
1/50th	"	175,000	=	3,500
		500,000		17,619

But if the correct average life were 35 years, the total amount required each year would then be (omitting interest, remember) $500,000 \div 35 = \$14,285.71$.

Now let us see why 35 years, and $14,285.71, derived therefrom, are not correct.

If we are to find the average life of the plant, we must state

our proposition so as to include all the dollars involved in the full fifty years period. For instance, during the fifty years, we have to take care of Parts "A", $25,000, five times, for these parts have to be renewed every ten years. So for all parts we shall have to consider the number of times they will have to be renewed during the fifty years period.

Bearing this point in mind, the proposition stated on page 117 will then take this form:

TABLE "A."

Years.	Value of Parts in Dollars.	Times Renewed in 50 Y'rs Per'd.	Total Requirement in 50 Years Period.		Years.	Dollar-Years.
10	25,000	5	125,000	X	10	= 1,250,000
15	50,000	$3\frac{1}{3}$	166,666 $\frac{2}{3}$	X	15	= 2,500,000
25	100,000	2	200,000	X	25	= 5,000,000
35	150,000	$1\frac{3}{7}$	214,285 $\frac{5}{7}$	X	35	= 7,500,000
50	175,000	1	175,000	X	50	= 8,750,000
	500,000		880,952			25,000,000

Having calculated the total number of dollars required during the fifty years for each class of plant, we must then, in each case, multiply by the number of years during which each dollar (or the plant which the dollar pays for) does duty. Thus we obtain the results shown in the last column, namely the "dollar-years."

Dividing now the total dollar-years by the total dollars to be provided during the fifty years, we have $25,000,000 \div 880,952 = 28.3783$ years as the average life of the plant represented originally by $500,000.

If our result is correct, the amount required each year to cover depreciation (omitting interest) should be the total number of dollars to be supplied during the fifty years divided by 50; that is, $880,952.38 \div 50 = \$17,619$; and it should also be the original value of plant divided by 28.3783, the average life of plant; that is, $500,000 \div 28.3783 = \$17,619$. And, without considering the question of average life, we have already found that to replace

each year 1/10th of $25,000, 1/15th of $50,000, 1/25th of $100,000, 1/35th of $150,000 and 1/50th of $175,000 requires $17,619.

So we find that if the process *indicated* on page 117 is correctly stated, performed and applied, we get a true average life of 28.3783 years, requiring an annual payment from profits of $17,619 to provide for depreciation without interest accumulations.

To guard against possible misconception as to the so-called average life of plant in connection with the Sinking Fund method of providing for depreciation, we may well consider in a little more detail the difference in this respect between the compound interest sinking fund process and the direct method in which is set aside each year the actual amount of estimated depreciation.

In the case we have been considering—referring to page 118 of the "Notes"—we found that the amount required to care for depreciation of the $500,000 by the 4 per cent. compound interest sinking fund scheme was $10,163.50, which is 2.03 per cent. of the $500,000; and this 2.03 is almost exactly the per cent. required to redeem the *total original* cost of plant in 27¾ years, provided the *sinking fund is not disturbed* (in the "Notes" I say about 28 years, but 27¾ years is more exact); and furthermore this per cent. is sufficient to pay for the recurring renewals of the several parts "A," "B," "C," "D," and "E," in accordance with the life table assumed.

But we have seen by the calculations made in these supplementary notes that, by the direct method of setting aside each year the actual amount of depreciation, the true average life is 28.3783 years. In this particular case, these two figures, 27¾ and 28.3783, are so nearly the same that one might be led to suppose that they should be in actual agreement, and that the difference is due to lack of exactness in the compound interest calculations. A little thought will show that an agreement should not here be looked for.

In the direct method we are arriving at a true average life—that is, the "average life" is the *number of years elapsed when the plant will have depreciated an amount equal to the first cost,* and hence, necessarily, the number of years when the accumulated

payments to cover depreciation will have amounted to the first cost of plant.

Whereas, in the compound interest sinking fund scheme, the average life (if we permit ourselves to use this term) simply means the number of years required for a certain annuity to accumulate to an amount equal to the first cost of plant, *provided no withdrawals are made;* the amount of this annuity with its interest accumulations being such, however, that when, from time to time, it becomes necessary to make withdrawals to cover depreciation in accordance with the provisions of the scheme, there will always be found in the fund a sum sufficient to meet these recurring demands.

By the direct scheme (no interest) the accumulation of annual payments in the fund must necessarily be equal at the end of any year to the accrued depreciation. By the compound interest scheme this necessarily would never be the case unless a time was reached when all the parts of plant expired at the same time.

For instance, in the life table considered in the "Notes," there is always an overlapping of the life periods of the several parts of plant, and so there will never be in the fund sufficient to meet the total depreciation, though *there will always be enough to meet the requirements as to each part of the plant as it has to be renewed.* This means that when this overlapping of life periods occurs, as it probably always would in practice, the compound interest sinking fund scheme, strictly speaking, is only applicable to the case of a plant operating in perpetuity.

To illustrate:

On pages 122 and 123 of the "Notes" it is shown that by the sinking fund scheme we should have in the sinking fund at the end of the fifty years, after making all payments required for the renewals of parts "A," "B," "C," "D" and "E," \$54,195. The calculations are then made to show what should be the accrued *sinking fund* liability on account of the depreciation of parts "B" and "D," the lives of which overlap the fifty years included in the table. It is shown that the five years' sinking fund liability on parts "B" and fifteen years' on parts "D" will amount to \$54,312, being practically in agreement with the balance shown in the fund.

But this is *not* the actual accrued liability for *depreciation,* which would amount to

"B"—15 years life, $50,000; 5 years accrued, $50,000 × 1/3 = $16,666.66
"D"—35 " " 150,000; 15 " " 150,000 × 3-7 = 64,285.71

$80,952.37

It is thus seen that the compound interest sinking fund scheme, and the simpler scheme, which eliminates interest accumulations, are essentially different in operation. In connection with the sinking fund scheme the term "average life" is misleading, whereas, by the direct scheme the true average life, if desired, can be determined by the method shown in this supplementary note.

To further illustrate that the true average life will not be the same as the time during which a sinking fund scheme, if undisturbed, will accumulate, the total value of plant, we may apply a 2 per cent. and a 6 per cent. sinking fund scheme to the life table already used. To make the comparison more apparent, I will include in the one table these two schemes, the original 4 per cent. scheme and the direct scheme which entirely eliminates interest:

TABLE "B."

Parts of Plant.	Estimated Life in Years.	Value of Plant in Dollars.		AMOUNT TO BE SET ASIDE EACH YEAR TO COVER DEPRECIATION			
				6% Sinking Fund.	4% Sinking Fund.	2% Sinking Fund.	0% No Interest.
A	10	25,000		1896.75	2082.25	2283.25	2500.00
B	15	50,000		2148.00	2497.00	2891.50	3333.33
C	25	100,000		1823.00	2401.00	3122.00	4000.00
D	35	150,000		1345.50	2037.00	3000.00	4285.71
E	50	175,000		602.00	1146.25	2068.50	3500.00
Total Value of Plant.......		500,000	Total Annual Payments....	7815.25	10163.50	13365.25	17619.04
Annual Payments in % of Plant Value..........................				1.563	2.03	2.673	3.524
Years Required to Redeem Total Value of Plant.................				27.05	27.73	28.2	28.378

It is thus seen that as the interest rate of the sinking fund increases not only will the annual depreciation payment be reduced in amount, but, if we stipulate that in the meantime no withdrawals shall be made as in fact called for by the life table, then the time required to accumulate the total value of plant will also be reduced.

This seeming contradiction is the result of this stipulation, necessarily introduced for this time comparison. For we must remember that the amounts actually withdrawn to meet partial depreciations ("A," "B," "C," "D" and "E"), in accord with the life table, will be the same, no matter what the sinking fund rate of interest; and as we assume that these amounts are to be left in the fund and allowed to accumulate, the higher the rate of sinking fund interest the greater will be the tendency of these accumulations to reduce the time in which the total value of plant will be produced.

It is true that there is another factor involved in this comparison of so called average lives, though no reference to it is apparently called for by the comparative figures above given.

Where the factor just explained tends to shorten the so-called average life, this second factor here tends in a minor degree to lengthen it.

The higher the sinking fund rate of interest, the smaller will be the *sinking fund* liability for each part between the several withdrawal dates; therefore, the slower the accumulation and a consequent tendency between withdrawal dates to lengthen the so-called average life. While this tendency ceases for each part at its withdrawal date, the tendency is always in force with some of the parts, and therefore always affects the scheme as a whole.

I may avail myself of this opportunity to answer another question which seems to have puzzled a number of the class: "Why complicate the problem of depreciation with questions of compound interest; why not each year take out of profits for plant which will have to be renewed in ten years, 1/10th of its cost, for plant which will have to be renewed in fifteen years, 1/15th of its cost, &c., and then let the interest on the depreciation fund be absorbed year by year into the profits?"

This is exactly the case I have covered in the sixth paragraph, page 129, beginning:

"The simpler and more usual arrangement."

I also refer to this plan on pages 138 and 139.

The objection is the larger amount required in the first in stance to cover the annual depreciation charges.

We have seen that by the more direct method it would require $17,619 a year taken out of profits, whereas, by the 4 per cent. sinking fund scheme it would require only $10,163.50; that is, 3.524 per cent. of the cost of plant instead of 2.03 per cent. of cost.

This difference might prohibit the adoption of the simpler plan, especially in the early days of a new venture.

I am chiefly concerned to convince you that depreciation should be provided for out of profits, and I have therefore shown the necessity of accurately estimating the depreciation and the manner in which the means may be provided for meeting this item of loss with the least burden to the business.

Let me also emphasize the point that *if* a certain portion of the profits are, year by year, invested in plant extensions to cover depreciation, we must be careful to keep our accounts so that there will be no excuse offered for issuing additional bonds or capital stock against these additions to plant, for by this method we have simply made good the depreciation of certain parts of plant by adding other parts.

On page 138 of the "Notes" I have shown a correct method of caring for this case.

Suppose, for instance, we have Plant Account standing with a debit balance of $500,000. Say at the end of the year we debit Loss and Gain Account $10,000 for the year's depreciation, and we credit this amount to Plant account. Then Plant Account's balance is reduced to $490,000, which correctly represents the reduced value of plant. Now suppose that it so happens that we invest $10,000 (an amount exactly equal to the year's depreciation) in legitimate *additions* to plant; this amount is then credited to Cash Account, debited to Plant Account, and the debit balance of the latter is so increased again to $500,000. Then the

depreciation has been exactly covered by the new plant added, and this fact is shown by the Ledger, for the balance to the Dr. of Plant Account stands as before, $500,000, and so no warrant is furnished for an additional issue of securities.

To make these notes more convenient for reference, I add the compound interest and annuity tables required for the calculations in these notes.